RESEARCH NOTE

The importance of relationality: A note on co-determinism, multispecies relationships and implications for COVID-19

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Abstract

The paper aims to highlight the importance of subjective, objective and inter-subjective domains when engaging in public education and research on wicked problems such as violence, poverty, climate change, loss of habitat and pandemics. The case is made that critical systemic thinking and practice—underpinned by a meta Design of Inquiring Systems—could help to foster a more relational response to the convergent social, economic and environmental policy challenges that pose 'existential risks'. This paper explores the implications of 'mismeasuring our lives' by not understanding relationality. It reflects on the factors that are linked with the 'unravelling' of well-being, in order to prevent and restore the multispecies relationships that have been forgotten. This requires a bio-political approach to reframing not only economics but our relationships with one another and with nature. 'Power and knowledge are linked' and nowhere is Foucault's linkage more marked than in the biopolitical determination of what species are valued and why. Taxonomies are constructs based on values that need to be carefully considered in terms of the consequences of policy decisions.

KEYWORDS
interrelationships, misdirected systems, systemic

1 | INTRODUCTION: THE IMPORTANCE OF RELATIONLITY AND CO-EVOLUTION

The relationships across living systems are co-determinant, a truism that seems to have been forgotten by policy makers and economists who concentrate on business as usual and are motivated by what Flyvbjerg (2014) calls 'the four sublimes', including 'the big technology project', the project aimed at 'political gains' or 'economic gains' and 'aesthetic appeal'. These are often 'sold' to government and tax payers by hiding the full costs and the full extent of risks, so that people (including tax payers) only find out later that the social, economic and environmental costs outweigh the benefits.

Flyvbjerg (2014) cites the cost of the Olympic games to the Greek economy which brings to mind the obvious socio-economic risk that the Olympics will cost to Japan during the COVID pandemic.

Burying our head in the sand or 'pulling the wool over the eyes' of the public now poses risks that cannot be ignored. According to Flyvbjerg (2020, p. 614), it is just a matter of time before we experience another risk such as a pandemic, extreme climate event and the lessons that climate change and COVID 19 teach us is that the notion of 'keeping calm and carrying on', is the worst possible response, instead Flyvbjerg stresses the need to take the convergent challenges to humanity very seriously and to 'act fast' and 'at scale':

Regression to the mean is nice and reliable. Regression to the tail is reliably scary. We live in the age of regression to the tail. only a matter of time before another pandemic will hit us, and climate change events more extreme than any we have seen.

This paper explores the implications of 'mis-measuring our lives' (Stiglitz et al., 2010) by not understanding *relationality* and not valuing 'natures contributions to people' (IPBES, 2019).

It reflects on the factors that are linked with the 'unravelling' of well-being (Kaza, 2020; Macy et al., 2014), in order to prevent and restore the relationships that have been forgotten. Stiglitz et al. (2010) make a plea for a raft of measures to protect 'well-being stocks'. This requires re-framing not only economics but our relationships. Stiglitz et al. (2010, p. 15) use a multidimensional measure of well-being spanning:

1. Material living standards (income, consumption and wealth), 2. Health, 3. Education, 4. Personal activities including work, 5. Political voice and governance, 6. Social connections and relationships, 7. Environment (present and future conditions), 8. Insecurity, of an economy as well as a physical nature.

1.1 | Transformation for re-generation requires a transformation of values

The aim of the well-being stocks concept is to enable people to re-evaluate economics and to become more aware of the way in which we neglect social and environmental aspects of life. The pursuit of profit at the expense of people and the environment *is a central problem for anthropocentric democracy and governance* which values the rights of a minority at the expense of the majority (Stiglitz, 2011).

As stressed in ('From Polarisation to Multispecies Relationships' McIntyre-Mills, Corcoran-Nantes, et al., 2021; McIntyre-Mills, Wirawan, et al., 2021) alternative forms of organisation are possible to support well-being stocks but this needs to be achieved through creating a change in values, as stressed in many social movements, for example:

- 'the #Rhodes Must fall campaign' in South Africa was linked not only with a need to focus on the impact of colonialism, a de-centring movement that has been taken up in many parts of the world in a bid to re-

centre Indigenous Knowledge Systems (Hoppers, 2013).
- the # Fees Must Fall campaign stresses the need to make education affordable in South Africa. This requires a new model for education based on 'let us earn , whilst we learn and grow a future together' through community based co-operatives. The papers in *Transformative education for regeneration* (McIntyre-Mills, Corcoran-Nantes, et al., 2021) make the case that the problems underpinning pandemics are relational. Underpinning the problem of the COVID epidemic is a lack of recognition of our hybridity and interconnectedness (McIntyre-Mills, 2017). This has implications for public education, economics, governance, ethics and democracy as we can no longer pursue *business as usual* (McIntyre-Mills et al., 2014). The ethics of production, marketing and consumption needs to be revisited as we reflect on the virus. Attenborough (2020)[1] reminds us that human beings are superfluous on the planet, but insects are not! Whilst stewardship is vital, it requires our understanding that human beings are *reliant* on nature and that 'we belong to the land' as indigenous leaders such as Bob Randall[2] have stressed. Instead of living in balance with nature, we are consuming the planet (Urry, 2010) by living beyond the limits (Meadows & Randers, 1992), which poses an existential risk (Bostrom, 2011) to our own species. Jane Goodall (2020), Attenborough[3] and Shiva (1989, 2012a, 2020a, 2020b) make connections across loss of habitat, confinement, approaches to the production, marketing of food and the implications for ethics, farming and trafficking of animals. COVID can be linked with a range of other epidemics from SARS (from poultry that ought to be free range) to swine flu. From this perspective, the roots of the problems lie in anthropocentrism and approaches to economics that work *against*, rather than *with* nature.

Donaldson and Kymlicka (2011) stress the need for safe habitats for animals and the implications this has on human security. This is a low road to morality. The high road is to recognise that all species form part of the web of life (Capra, 1996) and have a right to a life that is worth living (Nussbaum, 2006). Current economic systems are off track as we are not valuing well-being stocks (Stiglitz, 2011; Stiglitz et al., 2010) and the consequences are cascading social, economic and environmental risks as underlined in the current IPCC summary report for policy makers (2021, p. 42) that: 'Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years'.

Hope for humanity is rooted in valuing biodiversity and nature (IPBES, 2019):

- The # BlackLivesMatter Campaign in the wake of the brutal death of George Floyd (when he was arrested by police in the USA) has sparked global movements that have raised questions about social justice and the need for black voices to be heard globally. The UNDRIP (2007) which stresses Rights of Indigenous Peoples provides a vital pathway for socially inclusive decision-making on habitat protection. The ideas underpinning the UNDRIP stress that Indigenous people need to have the right to express their identity within a sacred space. The challenge will be to scale up this sense of stewardship not only at the local level but also at a post national regional level through understanding that we are stewards of one planet. The earth politics notion of Vandana Shiva is a logical direction for securing the biospheres for food security of living systems (McIntyre-Mills & Christakis, 2021).
- The #*Metoo* movement focused the need for women's voices to be heard and in Australia the marches associated with Indigenous and women's rights were sparked by a sense of injustice (see for example WHO report, 2019).
- The marches led by school children, inspired by Greta Thunberg on climate change and emissions have added to the sense that current structures are no longer acceptable. Thunberg stressed on 11th December in Madrid (2019) that hope resides in the people and not in governments or organisations[4]: 'We need a balance of optimism and outrage in the environmental movement'.

'Human beings and the environment construct each other and co-evolve. Our choices could create an environment that limits the choices for future generations. It is this co-evolution that will shape our future on this planet. Understanding the way in which human and natural systems shape each other is vital … It is this *co-evolution* that will shape our future on this planet' (McIntyre-Mills, 2008b, p. 323).

User centric design and participation by those who are to be at the receiving end of policy needs to inform governance structures, not only because the complexity of a design needs to be matched by the complexity of the designers—as outlined in the cybernetics rule of requisite variety (Ashby, 1956), but because human beings are more likely to be supportive because the modelling is democratic (Christakis & Bausch, 2006; McIntyre-Mills, 2008a).

People need to understand the implications of decisions through 'if then' scenarios (McIntyre-Mills et al., 2014, 2018) and through engaging with global citizens using new architectures (Christakis & Bausch, 2006;

Flanagan & Christakis, 2010) to enable steering rapidly and responsively *from below* and *above*, in order to balance our individual and collective interests in ways that protect living systems. This requires scaling up post national regional engagement to protect the commons as detailed in Planetary Passport (McIntyre-Mills, 2017) which draws on the innovative governance approaches of global agoras (Christakis & Bausch, 2006) and the architecture of the Buckminster Fuller suggested by Stafford Beer (1974, 1975, 1994) and Leonard (1994) to protect space ship earth (Buckminster Fuller, 1978; Marks, 2021).

We need to work together in teams, *not only* in specialisations as stressed by Allena Leonard in several International Systems Sciences workshops on team syntegrity (drawing on the geodesic dome architecture of Buckminster Fuller to explain the strength of cross cutting relationships buttressed by dialogues that test and integrate understanding). As stressed by the reviewer of this paper: 'Teams provide the means whereby specialist viewpoints can come together to create a greater whole. Even the 'systemist' is a specialist, their speciality is integration or syntegration if you prefer'.

Specialisations however need to be balanced through team efforts and educational opportunities to learn in more integrated ways. When taken to extremes, specialisations are harmful. A key point made by Buckminster Fuller is that focusing only on specialisation can lead to a so-called 'divide and rule mentality' which is counterproductive for our shared survival.

2 | CO-DETERMINATION SHAPES EVOLUTION

All relationships have consequences. Co-determination is a process that needs to be better understood, it is based on cause, effect and feedback in ongoing iterative cycles that lead to turning points for the better or worse. The co-determination across convergent anthropocentric social, economic and environmental systems has led to an acceleration in the risks to human security through land degradation (IPCC, 2019, 2021)—in turn impacts on the level of our carbon footprint as natural carbon absorbers are destroyed for 'development'. Haraway (2014, 2015, 2016a, 2016b) illustrates this point in her work on power and relationships within and across species and relationships with technology.

2.1 | Co-evolution

Co-evolution has been explained by many systems scientists, including Maturana (2002), Maturana and

Varela (1973, 1980) and Lovelock (2006) in 'Revenge of Gaia', physicists such as Bohm (2002)[5] discussed his ideas about our *enfoldment* in nature and summarised some of the key points in conversation with the Dalai Lama (Bohm, 2018). Noble prize winner Maathai (2010) who founded the Greenbelt Movement in Kenya explains that protecting trees results in protecting current and future generations as trees create micro-climates, protect ground water and biodiversity.

Shiva (2012a, 2012b, 2020a, 2020b), winner of the Sydney Peace Prize, is not only a physicist but also an ecofeminist who stresses that our choices about food security are vitally important. She has chosen the protection of seeds as a pivotal turning point. By protecting biosecurity we protect human security. Deep ecologists such as Naess (1995) and Macy (1995) (see Kaza, 2020) apply relationality to creating a social movement to become more aware of our place in nature.

Politicians such as Gore (2007) in 'Assault on Reason', naturalists such as Attenborough (2020) and Goodall (2020) have highlighted the problems of anthropocentric approaches. By ignoring the impact of living beyond our limits (Meadows & Randers, 1992), more people than ever before have been displaced as a result of conflict in the wake of water, food and energy insecurity as habitats are lost.

It is estimated by a United Nations High Commission Report (2021)[6] that 82.5 million people have been displaced as a result of 'conflict, persecution, violence or disaster by the end of last year, while refugee resettlements have plummeted to a two-decade low amid the coronavirus pandemic'.

The United Nations High Commission Report (UNHCR) (2021)[7] website stresses: 'Despite the pandemic, the number of people fleeing wars, violence, persecution and human rights violations in 2020 rose to nearly 82.4 million people, according to UNHCR's latest annual Global Trends report released today in Geneva. This is a further four per cent increase on top of the already record-high 79.5 million at the end of 2019'.

The impact of urbanisation is detailed in the UN Urbanisation Report (2014) which stresses that the rate of urbanisation is faster than previously anticipated and that Africa and Asia are areas where these changes could have wide ranging implications for human security.

3 | THE OBJECTIVE, SUBJECTIVE AND INTERSUBJECTIVE MATTER WHEN MAKING POLICY DECISIONS

The observer and the object of the research are just two variables within a systemic relational context and so s

when we are doing research we need to considered the many social, political, cultural, biological, economic and environmental relationships that come into play.[8]

At the invitation of the Systems Institute at the University of Hull, Carlo Rovelli (2021) a physicist and scholar discussed the philosophical principle that when we try to understand reality we need to look at the relationships across variables (2021). This echoes the point made by Barad (2003, 2007) who is concerned about why relationships matter (Freitas, 2017) and is influenced by the quantum physics of Niels Bohr, but it is also stressed in the work of David Bohm who explored the parallels between quantum physics and Mayahana Buddhism with the Dalai Lama (2005).

The relationship between the observer and the observed can change behaviours and interactions across participants in a research project. It is appropriate that the Mike Jackson Annual lecture focused on relationality in 2021. When undertaking policy research and education, it is vital to consider what we include and exclude (and why) when to re-draw the lines of inclusion or exclusion. The meta design considerations (critical heuristics) need to include multiple dimensions guided by a questioning mindset guided by a meta-design (Churchman, 1971, 1979) that 'unfolds' values and 'sweeps in' social, cultural, political and economic variables through engagement with a range of stakeholders who can provide the requisite variety required to ensure that the policy decisions are better informed (Ashby, 1956; Christakis & Bausch, 2006; Christakis & Kakoulaki, 2021; McIntyre-Mills et al., 2014). The 12 is/ought questions developed by Ulrich and Reynolds (2010) based on Churchman's (1971) design of inquiring systems is helpful in this regard in order to consider the consequences of our decisions by exploring a series of 'if then' scenarios.

An obvious further concern is that if we are blind to our relationship to other species then we are likely to accelerate risks. Policy makers concerned with risk management need to address biopolitics, a key area of concern and one raised by Foucault (2008). Taxonomies are linked with power and knowledge, what and who we decide to include or exclude, depends on our values. A nonanthropocentric approach is desperately needed if we are to have a hope of achieving the rapid transformation which we desperately need as stressed by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (2019) and in several sole and joint publications based on several small pilots that together provide some insights into a possible way forward[9] to address the rights of the most marginalised.

The subjective, objective and the intersubjective domains are equally important when considering wicked

complex problems (Rittel & Webber, 1984) such as violence, poverty, climate change, conflict and pandemics and in many ways the relationality of the subjective, objective and intersubjective domains shape policy in positive and negative ways. We can engage in policy in ways that create turning points for the better or worse. Our values and decisions shape the world in which we live and thus public education and policy debates need to be informed by ecologists, zoologists, climatologists, physicists, economists and philosophers and social scientists who understand our interconnectedness, if we are to have a hope of achieving policy transformations that regenerate (Wahl, 2016, 2019) and sustain the environment (see Murray et al., 2007; Von Foerster, 1995 who stress that ethical decisions are determined by the way we think and interact with the environment; also see McIntyre-Mills, 2008b, p. 325).

Research needs to take into account the subjective, objective and intersubjective dimensions when understanding the origins, prevention and treatment of COVID-19. Ethical thinking matters quite literally as our ideas shape our world for better or worse (Diehm, 2007).

The subjective perceptions and objective (empirically supported) research on how the virus originated and how it can be mitigated need to focus on interactions across a number of variables ranging from:

- Habitat destruction linked with the way industrialised agriculture has reduced biodiversity and thus made agriculture using plantation monocultures to be vulnerable to disease (Scott, 1998; Shiva, 2012a) supported by the objective research on climate change and habitat loss by the IPPC (2021), the United Nations Sendai Risk Platform (2015–2030) and United Nations Urbanisation Report (2014).
- Confinement and inappropriate animal husbandry leading to morbidity
- Trafficking and marketing multiple species that do not usually come into contact in the wild and thus have no cross species immunity to disease (Goodall, 2020).
- Collaborative research on rapid vaccine production (Yong, 2021) showing the ability of scientists to unite against a common threat.
- Collaborative research on cross species immunology and perceptions on the origins of the virus has occupied social media ranging from theories that the virus was perhaps:

a. self-generated in nature—as a result of species that do not usually come into contact being thrust together. It has been suggested that the disease could have been incubating in a range of contexts as a result of trafficked creatures (that would never usually come into contact in the wild) being brought together in wet markets in a number of places in Africa and Asia. Pangolins from Africa meet bats from Asia only in stacked cages where they sicken as they wait to be slaughtered (Goodall, 2020), or perhaps it was

b. *created* as a laboratory chimera between human and bat cells, in order to find a way to prevent or react to bioterrorism or to treat a COVID type infection, because bat researchers had been warning about the potential for a lethal virus to occur and this is one of the reasons that collaborative research was undertaken (Markson, 2021), but this needs to be balanced by understanding the extent to which 'news' is in fact evidenced based as opposed to being based on conspiracy theories[10] in a now discredited report which also speculated on

c. *possible safety breaches and the denial and complicity* of at least two leading nations who collaborated on the research leading to intersubjective debate and social media speculation which the WHO has attempted to de-escalate by hosting a fact finding mission. It is also possible that the research in Wuhan (apparently partly funded by USA[11] as a collaborative gesture) could also have contributed to the spread to or from the nearby market. According to Markson's (2021) controversial article in the Australian, Anthony Fauci was aware of the risks associated with 'gain of function' corona virus research that was funded by grants from the United States, but considered the institute to be of a high standard and worthy of funding. At a practical level, Gillespie (2021) stresses the need for better regulation of research, given the number of biosecurity leaks that have occurred in many parts of the world. France apparently criticised the decision to undertake research in laboratories that are not carefully managed.

- Personal bravery and collaborative community responses creating heroes who kept schools, supermarkets and hospitals running.
- Personal loss and fear as the total global loss exceeds 3.8 million by 18 June 2021 and more that 177 million people are infected as the pandemic escalates and as vaccine politics continue to play out as fear of side effects are stoked on social media as the new variants continue to pose what appear to be never ending challenges and the dehumanisation of mass health care responses as services run out of capacity to cope.
- Another aspect is the market pressure to maximise profits in health care delivery and minimise the spread of disease which poses enormous challenges for health care providers on the front line.[12]

- The vaccination divide between those who are prepare to 'have the jab' and those who refuse or wish to access vaccination options that are not available.

4 | VIGNETTES ON THE SOCIAL, ECONOMIC AND ENVIRONMENTAL CONTEXT OF COVID

Early on in the pandemic as health professionals struggled to treat the disease, the South African department of health advised that blood thinners are helpful in managing COVID[13] and social media posts suggested that the vaccination of large numbers of people for tuberculosis in South Africa was perhaps helping to raise immunity.[14]

As a result, health workers in many parts of the world (during the earlier phases of the pandemic) added BSG vaccinations to help boost immunity whilst researchers raced to create a vaccine. Less helpful media reports added that anti-inflammatories could worsen COVID.[15] The need to achieve a balanced immune response—to enable the body to fight the virus and to respond to the adaptations—seemed to be the challenge.

I bore these snippets of information in mind as I listened to members of the ISSS group discussing the different aspects of COVID, from the biological (blood circulation) and inflammation to the chemical reactions between a very simple virus and a very complex human being with multiple cells.

The next consideration is the personal—fear and anger, not to mention psychological[16] anxiety, depression that has resulted in higher rates of mental health presentations in South Australia (Boyle et al., 2021) at hospitals that are unable to cope with the increased demand.[17] In 'Fortress Australia' although the hospitals are not overflowing with physically ill people, apparently the number of mentally ill people has risen and they are not receiving adequate care (Mendoza, 2021)[18] because demand outstrips the services that are available. Mendoza (2021) estimates a 40% increase in mental health presentations at the Royal Adelaide hospital and he continues by explaining that:

> An investigation into ramping at South Australian hospitals conducted before the pandemic found more than 34% of mental health patients brought by ambulance to South Australian emergency departments experienced ramping.

Unemployment or the fear of income loss is one of the contributors as is the separation of family members and loved ones who are unable to cross borders. The stresses faced by international students who are unable to return home or remained locked out of their courses because they are unable to travel.

The other socio-economic factor is the high rate of domestic violence and the threat that isolated women and young people face during lockdowns. The digital divide has made the challenge of being able to afford to buy a phone or a computer out of reach for many who had relied on face-to-face engagement and minimal technology. The perceptions of how young people feel about the situation is summed up in The Youth Submission Report by the South Africa's African Peer Review Mechanism (APRM) civil society working group (2020/2021, p. 99) draws on Statistics South Africa and stresses that:

> According to Statistics South Africa, only 37% of South African households have constant access to the Internet, either by phones or computers. In provinces such as the North West or Limpopo, this figure drops to 3.6% and 1.6% respectively.

Being able to afford access to data bundles in South Africa is a burden that many find beyond their budget, given the high levels of unemployment and informal employment. The same ARP report (2020/21, p. 47) stresses that: 'South Africa's unemployment rate reached an all-time high of 32.5% in the fourth quarter of 2020' and cites Statistics South Africa, 'Quarterly Labour Force Survey'.[19]

The Gini Coefficient for poverty in South Africa[20] in 2021 is estimated as 0.63 and remains one of the highest internationally, despite dropping from 0.65 in recent years. It is likely that the pandemic has reversed many of these gains. Relying on access to computing is unrealistic in South Africa *unless* people are able to learn, earn and grow a future together through vocational training linked with formal and informal sectors that enables them to escape the digital divide and to earn a sustainable living. It is time to re-think the structure, content and process of delivering education in ways that do not favour urban centres at the expense of the rural and regional areas.

5 | WHY WE NEED 'PHILOSOPHY IN A TIME OF TERROR'

The need to engage in dialogue to develop intersubjective understanding is vital in times of terror. Jurgen Habermas and Jacques Derrida discussed with Borradori (2003) the importance of 'philosophy in a time of terror' in the wake of the twin towers. They stressed that only through respectful engagement and tolerance

can we move towards sustaining democracy. Another key point is the need to enable people to understand their options through helping them to think through scenarios and helping them to think about the consequences of their decisions (Flanagan & Christakis, 2010; McIntyre-Mills et al., 2014).

Systemic responses need to address the complex, diverse needs of the vulnerable, unemployed, frail and aged in the population through engaging with them and ensuring that their perceptions inform the policy designs and responses. This is in line with the Law of Requisite Variety (Ashby, 1956) which is a basic principle of cybernetics.

5.1 | Intersectionality and relationality

An intersectional (Crenshaw, 1991) lens is thus also needed to view areas of concern through a gendered lens. The levels of violence against vulnerable people and most especially against women have risen exponentially. In these circumstances, there is a need to work together and protect the most vulnerable whilst engaging in social distancing.

The vulnerability of the marginalised is replicated globally with rising rates of COVID-19 among those at high risk-especially are exacerbating the present situation. The assessment of risks of violence for those in lockdown or socially isolated with few protections or the ability to escape or avoid potentially violent situations leads to even greater risks for the vulnerable. The abuse of a disabled woman with cerebral palsy in South Australia is just one example, she became the victim of her carer who was contracted by the public sector, but appropriate governance measures were not in place.[21] A commission of inquiry is currently in progress as this is possibly not an isolated incident.[22]

Indonesia has highlighted the need for more emphasis on the needs of the marginalised (including the disabled) and this is important to colleagues at Universitas Padjadjararan who have a focus on social justice research. The UN report (2019) and International Alliance on Disability (2020) highlight that Indonesia needs to focus on the requirements of the physically and mentally frail. Indonesia shares the same concerns about the needs of the frail, and as the pandemic has worsened in Indonesia, it has not followed the same lock down approach as Australia and South Africa; thus, a comparison across Tshwane (South Africa) and Bandung (West Java) is appropriate for comparative purposes to assess the impact of the pandemic on socio-economic and cultural contexts. Furthermore, both South Africa and Indonesia have high rates of urbanisation, which will impact quality of life in

cities as it will place stresses on water security and infrastructure, not to mention the implications on food security as more farmers leave the land.[23]

## 6 | NEW ARCHITECTURES FOR DEMOCRACY AND GOVERNANCE ARE OVERDUE

Pandemics need to be redressed by international networks supported by social and environmental justice coalitions. According to Yeates (2014), regional organisations are neglected partners in global efforts and that by working more collaboratively research can offer significant opportunities to strengthen action, protect and re-shape systemic policy agendas. The objective is to contribute to regional well-being case studies using comparative social policy methods (cross-national, cross-sectoral), to build up a strong evidence base to inform policy analysis and policy making that integrates social, economic and environmental well-being. It addresses sustainable social, economic and environmental well-being (Mair, 2020; Pauli, 2010; Stiglitz et al., 2010; United Nations Office for Disaster Risk Reduction, 2017).

Thus, systemic mixed methods research (see Mertens, 2019) for living systems (Wadsworth, 2010) needs to draw on the policy agenda underlined by the UNRISD (2017) to strengthen action through a regional learning network — based on user-centric policy design (Figure 1) to explore: (a) existing policies, (b) the way "the problem is represented" (Bacchi, 2009) and (c) to make recommendations:

6.1 | Reconsidering design with service users and providers as a starting point to develop an understanding of our interdependency on nature

Nussbaum's (2006) plea for extending the frontiers of justice to include all those who fall outside the mantle of the social contract extended to the citizens of nation states can be addressed by focusing on the capabilities to protect the voiceless, including the young, asylum seekers, the frail, the disabled and all sentient beings. Nussbaum's (2011, p. 31) 10 capabilities are directly concerned with well-being, a life worth living and the extent to which these can be addressed. In Nussbaum's version, the Capabilities approach focuses on 'the protection of areas of freedom so central that their removal makes a life not worthy of human dignity' (p. 31).

These capabilities need to inform design and include '(1) living a life that is not cut short prematurely
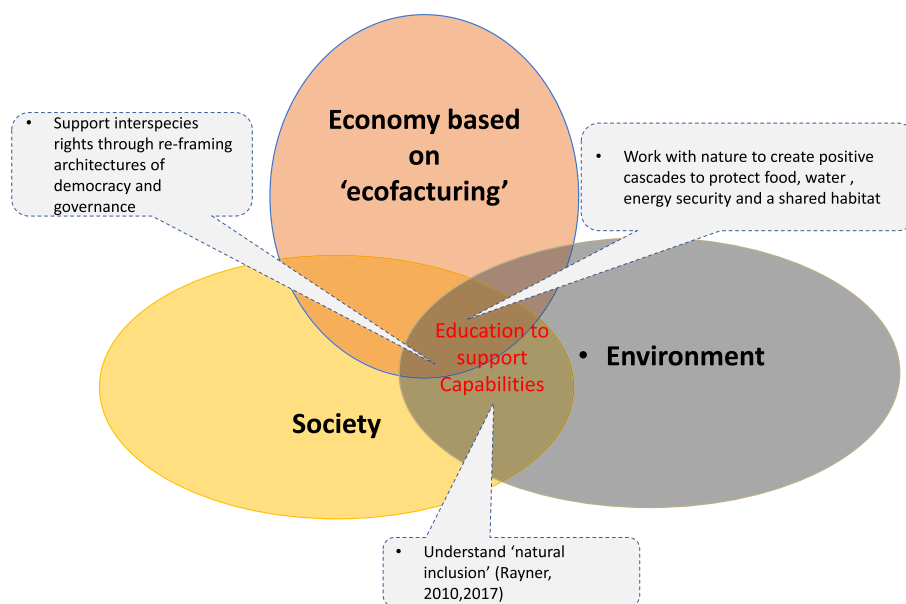
FIGURE 1 Well-being stocks supported by balancing individualism and collectivism. Sources: extending Elkington (1997) triple bottom line accounting and accountability through engaging *to protect* well-being stocks (Stiglitz et al., 2010) by balancing individualism and collectivism (McIntyre-Mills et al., 2018) through (a) enabling capabilities (Nussbaum, 2011) so that (b) local residents work with nature (Pauli, 2010) in ways that (c) support the commons (Ostrom, 2014) through (d) scaling up local projects to protect habitat for multiple species (McIntyre-Mills, Corcoran-Nantes, et al., 2021) and protected by an ecocide law (Higgins et al., 2013) that respects living systems (Wadsworth, 2010) [Colour figure can be viewed at wileyonlinelibrary.com]

(2) bodily health, (3) bodily integrity, (4) sense, imagination, and thoughts,(5) emotions, (6) practical reason, (7) Affiliation, (8) links to other species, (9) Play, (10) Control over one's environment'.

Nussbaum, however, extends these capabilities to all sentient beings and thus takes an important step towards non-anthropocentrism and the potential of multispecies relationships that are relevant to protecting well-being stocks (Stiglitz et al., 2010). As stressed elsewhere (McIntyre-Mills, 2021a, 2021b; McIntyre-Mills & Romm, 2019; McIntyre-Mills et al., 2018, 2019) social and environmental justice is about people being able to live in freedom and dignity and able to exercise choices to pursue a full and creative life. The 10 central capabilities provide a flexible framework for a human development approach that permits an analysis of the diverse challenges. It is hypothesised that the greater the level of (A) public education on Nussbaum's 10 capabilities for a life worth living, the more likely (B) people are to participate as active agents to exercise and protect the rights of the most vulnerable. Service providers need to use a purposive network sample via appropriate public and NGO sectors and asked to reflect on their experience of front-line delivery on a zoom panel. A mixed methods approach (McIntyre-Mills et al., 2019) could be used to collect the data. By exploring qualitative perceptions and quantitative data to which service providers have access

they could better establish gaps and highlight areas for further research. Grounded theory can deepen existing theories and enable the development of new theories (Corbin & Strauss, 2015). Therefore, qualitative research design to develop grounded theory is helpful in exploratory research into the risks faced by the marginalised.

A capabilities approach is needed to protect the marginalised based on user-centric design that can be enabled through enhancing capabilities and alternative pathways to address better service outcomes, for example:

- 1. What resources do you have (material and non-material) when addressing COVID-19?
- 2. What are the main material and nonmaterial resources?
- 3. What responses are in place?
- 4. What can be done to make a difference to their lives, in terms of adding services or removing barriers?
- 5 What are the turning points for the better and worse?
- 6.What are the social, economic and environmental barriers facing each group?
- 7 Drop down lists that grow share resources linked with '*persons, entities, themes and actions*' at the personal, household, local, national and post national levels

- Spread sheets can be developed based on the data and displayed in terms of demographic data X haves/needs, barriers, turning points for the better/worse.

Zoom engagement is helpful for those living in cities (who are able to afford to use the internet and who have access to a computer), but for those living in remote areas with minimal income and connectivity, computing does not solve problems.

'Misdirected systems' result in striving to do 'the wrong things right', to use Ackoff and Pourdehnand's (2001) well known aphorism—referring to the convergent challenges that flow from inappropriate designs—that are no longer viable. *Treating the effects*, whilst vital—is insufficient. Better governance is also needed to *mitigate the causes* of the convergent social, economic and environmental threats.

Engagement is a first step towards a nonanthropocentric appreciation that human beings are reliant on nature. A sense of 'natural inclusion' (Rayner, 2010, 2017a, 2017b) flows from a sense that human beings are part of a wider whole.[24]

7 | RELATIONALITY AND THE PANDEMIC

Economically, the pandemic has provided some positives; it has slowed business as usual and for a while this had a positive impact on our human footprint. As discussed in Tretter et al. (n.d.), paradoxically, the virus lock downs have resulted in lowering of carbon emissions (Abram, 2020). Another paradox is that: 'human beings strive to be individuals and part of a group (Berger, 1977) but COVID-19 is teaching us that "A is better off when B is better off," to cite the cybernetics axiom popularized by Von Foerster (1995). The caveat "as long as B is not undermining the rights of current and future generations of living systems" could be added'.

This axiom is inherently cosmopolitan as stressed in 'Systemic Ethics' (McIntyre-Mills, 2014, p. 48), and it requires laws (such as the bill for an Ecocide Law; Higgins et al., 2013) to make a practical difference. From this basic precept, many ethical principles follow. For example, if viable vaccines are not widely shared we will all suffer. Co-operation within and across the social and natural sciences needs to be for the common good. If aid is not shared, we will face the potential of more conflict. If we continue to ignore the implications of a carbon economy, we face ' existential risk' (Bostrom, 2011).

Tragically, by striving to understand the place of human beings in relation to others and nature, Western science and philosophy emphasized categorical thinking, based on the Cartesian notion 'I think therefore I am'. Drawing on dualism as a rationalization, people, animals, plants and the environment are commodified as the first step.

In a forthcoming volume, transformative education for re-generation (McIntyre-Mills, Corcoran-Nantes, et al., 2021), I make a case that: In order to manage the commons, mutual agreements need to be negotiated and records need to be kept, in order to protect the interests of stakeholders. The commons needs to be theorized as a legal concept (Marella, 2017) and as a transformative governance concept (see Planetary Passport, McIntyre-Mills, 2017; Systemic Ethics, McIntyre-Mills, 2014; Wirawan & McIntyre-Mills, 2019). COVID-19 provides a once in a lifetime opportunity to rethink our place in the web of life. Furthermore, in order to have a hope of achieving the UN Sustainable Development Goals (2030), a nonanthropocentric approach is needed that recognizes humanity as a strand in the web of life and that animals and the environment are sentient and cannot be treated as commodities unless we wish to experience the consequences of climate change detailed in the IPCC (2018) report and the full ramifications of an unsustainable factory based agriculture that brutally confines animals in conditions that are breeding grounds for viruses.

> The notion of high rise and high density farming of chickens and pigs is already a reality in megacity environments where new versions of bird and swine few are just a matter of time. Cattle fattening yards feeding ruminants on an artificial diet was responsible for mad cow's disease and I could continue to give examples of how the treatment of living creatures to a life not worth living will bring about our downfall (McIntyre-Mills, 2020; Stempel, 2020).

The social, economic environmental and political context all play a role in the creation of the perfect storm as governments hastened to point the finger of blame; instead we need to look at the way current systems of global food production are responsible—aided and abetted by global systems of industrialised production which harm biodiversity and small local producers.

The political context of the origins and spread of the virus have also led to a cooling of international relations and escalating tensions expressed in terms of trade. The big issues of the day, namely our relationships with other species and the environment are addressed in *From Polarisation to Multispecies relationships* (2021) in which a case is made for re-membering our place in living systems through embracing a non- anthropocentric

approach to ethics and governance. As Harris and Wasilewski (2004) stress we need to place more emphasis on 'relationship, responsibility, reciprocity, redistribution' vs. 'power and profit' if we are to have a hope of meeting the United Nations Sustainable Development Goals.

Intersubjectivity is the realm of politics, a realm that needs to be addressed within the context of any research on COVID. Paradoxically, despite the many negative side effects, one of the positive ones has been solidarity in sharing research and collaborating, if not 'beating the virus' as Yong (2021) suggests. *Creating* vaccines, *sharing* them and *updating* them regularly and managing laboratory research whilst vital and *necessary*—is *insufficient*.

We also need to implement better *social*, *economic and environmental governance* and to give more attention to *prevention* through better management of habitat and better farming methods that maintain and re-generate biodiversity.

'The people plague' (of population growth) to which Lovelock (2000) referred is now subject to a pandemic of our own making possibly through habitat destruction, laboratory research as well as a so-called leak which in any event (if it occurred) is the by-product of research funded and undertaken by two of the world's leading nations. It seems that conspiracy theories are out of place as our human way of life (whether it be the worst versions of capitalism or so-called communism) are responsible for living in ways that are rapacious and unsustainable. Power and knowledge are linked (Foucault & Gordon, 1980) and nowhere is the linkage more marked than in the biopolitical (Foucault, 2008) determination of what species are valued and why. Taxonomies are constructs based on values that need to be carefully considered in terms of the consequences of policy decisions.

8 | INTEGRATING THE SUBJECTIVE, OBJECTIVE AND INTERSUBJECTIVE DOMAINS

Generosity and compassion help us to turn strangers into friends and to take the first step towards making friends with enemies (Yu, 2006). This echoes C. West Churchman who reflects that 'religion, morality , politics and aesthetics' are the so-called 'enemies within' or 'shadows within', to apply a Jungian concept which he detailed in 'The Archetypes and the Collective Unconscious'. The so-called 'enemies within' are our values through which we filter the way we see the world. If people are similar or hold similar views on politics or aesthetics or morality, we are able to relate to them more easily. If people are deemed useful to the nation, they are given citizenship

rights and responsibilities. Those who fall outside the social contract include the young, the disabled, refugees and asylum seekers and other species (Nussbaum, 2006). If species are deemed useful then they are usually commodified!

Instead the great turning point for the better away from *Business as Usual* must include valuing other species based on a nonanthropocentric or 'biocentric' approach as stressed by deep ecologists such as Arne Naess.

All human beings view the world through value filters—but despite our differences all human beings share (along with other species) the need for food, water and safe habitat. Once we regard these as basic elements of a shared future, we could develop *the will* to foster better relationships and to engage more respectfully with one another, based on the *right to live peacefully within a shared habitat* (Higgins et al., 2013).

As the reviewer of this paper stressed: 'A key challenge is how to get people to care enough, to seek knowledge and understanding, to see through the misinformation and past their perceived constraints'.

New forms of democracy and governance (buttressed by a proposed ecocide law; Higgins et al., 2013) provide suggestions as to how this *could be achieved* through scaling up local engagement to manage biosecurity in the interests of social and environmental justice. Further pilots and more support to scale up initiatives are needed to mitigate existential risks.

We have nothing to lose but our way of life if we do nothing.

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ENDNOTES

[1] https://www.abc.net.au/classic/the-margaret-throsby-interviews/sir-david-attenborough-interviewed-by-margaret-throsby/11757192.

[2] https://www.globalonenessproject.org/people/bob-randall.

[3] https://www.abc.net.au/classic/the-margaret-throsby-interviews/sir-david-attenborough-interviewed-by-margaret-throsby/11757192. Life on our planet documentary, Attenborough (2020) https://www.youtube.com/watch?v=mU4wZhFCsGs.

[4] Chappall, B. 2019. https://www.npr.org/2019/12/11/787026271/greta-thunberg-is-time-magazine-s-person-of-the-year-for-2019.

[5] Baum was not involved in nuclear research unlike many of his colleagues and for personal and political reasons was concerned about social and environmental justice.

[6] There are now more people forcibly displaced around the world than ever before A UNHCR report has found 82.4 million people were forcibly displaced by conflict, persecution, violence or disaster by the end of last year, while refugee resettlements have plummeted to a two-decade low amid the coronavirus pandemic. Read in SBS News: https://apple.news/ALnFh78dFRf6KhCD1mA3rDA.

[7] https://www.unhcr.org/news/press/2021/6/60ca09a74/unhcr-world-leaders-must-act-reverse-trend-soaring-displacement.html.

[8] In this series Rovelli pays tribute to Werner Heisenberg, who discovered the fundamental equations of quantum mechanics. The other is Alexander Bogdanov. The relevance being that Heisenberg discovered that the process of measurement or interaction can shape what is being measured, whilst the work of Bogdanov, highlights how political contexts shape power and what passes for knowledge and in many ways echoes points raised by Foucault.

[9] The recent volumes follow strands of the food, water and energy web and the destruction of diverse habitats in a series of vignettes and grounded case studies by contributors in a range of contexts. The joint and edited volumes include From Wall Street to Wellbeing (McIntyre-Mills et al., 2014), Planetary Passport (McIntyre-Mills, 2017), Balancing individualism and collectivism (McIntyre-Mills et al., 2018), Democracy and Governance for Managing the commons (McIntyre-Mills et al., 2019), From Polarisation to Multispecies Relationships (McIntyre-Mills & Corcoran Nantes, 2021) and Transformative Education for Regenerative Development (McIntyre-Mills, Corcoran-Nantes, et al., 2021).

[10] https://www.theguardian.com/world/2021/may/14/sharri-markson-exclusive-on-chinese-bioweapons-based-on-discredited-2015-book-of-conspiracy-theories.

[11] SciCheck Archives - FactCheck.orgThe Wuhan Lab and the Gain-of-Function Disagreement *by* Lori Robertson Posted on May 21, 2021.

[12] Professor Felix Tretter 17th /06/2021, pers comm in discussion with International Systems Sciences working group: There are three basic problems: (1) the economisation of health care that motivates the operators of the hospitals to force the doctors to apply expensive methods. (2) the loss of clinical expertise that is substituted by technical procedures. (3) 'defensive medicine' that avoids false negatives by diagnostics by exclusion, also because of legal responsibilities (go to 1). These are main drivers of dehumanisation of human medicine as one experiences it when visiting medical services as a patient.

[13] https://sacoronavirus.co.za/2021/01/18/blood-thinners-for-covid-19-patients/.

[14] https://www.epworth.org.au/newsroom/tuberculosis-vaccine-could-boost-immunity-against-covid-19.

[15] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7287029/.

[16] Many of the conspiracy theories have laid blame at one or many nation states which has resulted in vast numbers of people attributing the virus to deliberate attempts to control or manage human populations.

[17] https://www.chiefpsychiatrist.sa.gov.au/policies-standards-and-reports/reports/reviews-and-investigations/investigation-into-delays-in-transfer-of-care-for-mental-health-consumers-at-south-australian-emergency-departments.

[18] https://theconversation.com/theres-a-mental-health-emergency-happening-in-south-australia-we-need-a-radical-overhaul-158961.

[19] Statistics South Africa, 'Quarterly Labour Force Survey (QLFS) – Q4:2020', http://www.statssa.gov.za/publications/P0211/Presentation%20QLFS%20Q4_2020.pdf.

[20] https://worldpopulationreview.com/country-rankings/gini-coefficient-by-country, The review explains that "The Gini coefficient ranges from 0 (0%) to 1 (100%), with 0 representing perfect equality and 1 representing perfect inequality. .... If every resident of a nation had the same income, the Gini coefficient would be zero. If one resident earned all of the income in a nation and the rest earned zero, the Gini coefficient would be 1... .... In South Africa, the richest 10% hold 71% of the wealth, while the poorest 60% hold just 7% of the wealth. Additionally, more than half of South Africa's population, about 55.5% live in poverty, earning less than $83 per month."

[21] https://www.ndiscommission.gov.au/media-release/2896.

[22] https://www.theguardian.com/australia-news/2021/jul/28/ann-marie-smiths-disability-care-worker-rosa-maria-maione-pleads-guilty-to-her-manslaughter.

[23] The aim of ongoing research is to work with colleagues to study co-operative social engagement on what works, why and how in Indonesia to provide insights for South Africa using a community of practice (see Wenger,1998; Wenger et al., 2009) The aim is to extend and deepen an understanding of democratic and governance opportunities, whilst recognizing that Ostroms research has revealed principles and patterns amongst co-operative groups but the place-based research on what works, why and how also reveals the limitations of local engagement and the need for advocacy for post national, post regionalist governance. Each of the case studies reveal limitations and potential, and it is acknowledged that we need to address the social, economic and environmental challenges at the macro level. Two current work in progress on pilots with human ethics approvals being conducted with colleagues in South Africa and Indonesia for two pilots with women who are focusing on social enterprises to explore what works why and how to support marginalised women.

[24] The reviewer commented: It could be argued that a new kind of Anthropomorphic philosophy is needed. One where humanity provides the basis of a greater consciousness towards the planetary whole. The situation is akin to the nucleated cell, where the nucleus (our collective human intelligence) responds to the cellular (planetary) circumstances with appropriate actions. To reach a mature Anthropocene https://futureearth.org/2017/10/04/how-to-reach-a-mature-anthropocene/ "Think like a gardener and not a watchmaker" is called for in the INCOSE complexity primer. https://www.incose.org/docs/default-source/default-document-library/complexity-primer-overview.pdf.

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